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ABSTRACT

This paper consists of an examination of current thinking on the factors influencing teacher training effectiveness and of a report of preliminary findings from a study of inservice teacher education. Previous research identifies five major components of training common to most inservice programs as presentation of theory, demonstration or modeling of skills, practice in simulated or classroom settings, feedback, and coaching. Those components provide a basis upon which to examine twenty junior high school teachers of English and math for low-achieving students. Teachers were divided into three groups, and three combinations of training components were used. Group 1 received presentation, demonstration, practice, and feedback in the workshops only; Group 2 received those four components plus classroom observations by a peer on two occasions; and Group 3 received the four components plus coaching by a trainer on two occasions. The training concentrated on specific techniques for raising student time-on-task. Preliminary findings were based on the observed percentages of academic interactions for each teacher and group. Group 2 evidenced most gain; this group participated in peer observation that was student-focused. It is tentatively concluded that peer observation is a fairly powerful intervention when it is nonthreatening and coupled with ongoing small-group problem-solving workshops. Group 1 did not improve as much as the other groups since it did not receive extra observations or coaching. Group 3 received on-site coaching from a trainer, but this did not seem to be as effective as peer observation. Descriptions are given of the activities of the four workshops, and the pre- and post-training and change scores for each teacher are graphically displayed. A brief discussion is presented on approaches to research on inservice training. (JD)

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Assessing the Impact of Three Inservice Teacher Training Models

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Assessing the Impact of Three Inservice Teacher Training Models

In the past ten years great strides have been made in identifying teaching behaviors that positively influence student learning of basic skills. Teacher management practices, instructional techniques, and expectancies have been found to relate to (and, in some cases, cause) significant gains in pupil learning (Brophy, 1979; Gage & Giaconia, 1981). Yet, teachers, administrators and parents are complaining about the inadequate acquisition of basic skills by our nation's children. How can these relatively recent findings be used to improve student learning? Teachers must learn to use them! Most practicing teachers get exposure to new ideas through some form of in-service training: workshops, college courses, or lectures. Yet, often, little change or improvement is noted as a result of these training efforts. It seems that teachers are unlikely to use new or unfamiliar techniques, however valuable they may be, unless they receive effective instruction in their use. What is needed is research on in-service teacher training effectiveness: What factors are important in bringing about teacher implementation of research-based teaching practices?

Research on in-service teacher education has traditionally dealt with this question. In most of these studies, the effects of various training models have been tested in simulated situations. But, surprisingly few in-service teacher training studies have investigated the transfer of learned skills to the teacher's own classrooms (Joyce, 1981). Thus, the process of actual teaching behavior change--how and why it occurs--has not been greatly illuminated by this research tradition.

A related area of research is the evaluation of implementation of educational innovations. Although these researchers have recognized the importance

of the teacher as the ultimate "implementer" of a new program, most systematic inquiry has been directed at school-level and higher organizational variables. Still, the reviewers of this literature have consistently noted the wide variation in degree of teacher implementation of new programs and have urged us to study the change process itself (Fullen & Pomfret, 1977).

In the past five years, researchers of teaching have conducted experiments comparing student academic gain in classes where (1) teachers received training on research-based teaching practices and (2) teachers received no training (Gage & Giaconia, 1981). In all cases, teachers were carefully observed to check on fidelity of implementation of the training. It was found that some teachers adopted only a few of the practices; others adopted most of them; and some hardly changed at all. Recently, an effort has been made to explain these findings (Anderson, et al., 1979; Mohlman, Coladarci & Gage, 1980) in terms of the characteristics of the teaching practices.

Given that teacher behavior change is critical to the improvement of teaching, there is surprisingly little systematic inquiry into the process of inservice teacher training and its effects on everyday teaching practices. The purpose of this paper is (1) to examine current thinking on the factors influencing teacher change (and, thus, teacher training effectiveness), and (2) to report preliminary findings from a study of inservice teacher training.

The Process of Teacher Change

The process of teacher change can be thought of in terms of (a) the organizational factors surrounding the training effort and (b) the training effort itself. Recent research has highlighted the importance of organizational

factors such as school policies, principal leadership styles (Stallings & Mohlman, 1981) and norms for collaboration and experimentation (Little, 1981). For the purposes of this paper, these school-level factors will be set aside, and the training effort itself will be examined.

There seem to be at least three major factors affecting in-service teacher training effectiveness: Training strategies, characteristics of recommended practices, and teacher characteristics.

Training Strategies

In 1980, Joyce and Showers reviewed over 200 studies of the effectiveness of various kinds of training methods. They defined two purposes of training: (1) "fine-tuning" of present skills and (2) learning to use a completely new teaching repertoire or curriculum. According to Joyce and Showers, the major components of training in the studies reviewed are:

1. Presentation of theory or description of skill or strategy.
2. Demonstration or modeling of skills or models of teaching (includes discrimination).
3. Practice in simulated and classroom settings.
4. Feedback (observation-based or informal provision of information about performance).
5. Coaching for application (hands-on, in-classroom assistance with the transfer of skills and strategies to the classroom) (p. 380).

Based on their review, the authors developed working hypotheses about the effectiveness of different components of training:

1. Training consisting of presentation, demonstration, and classroom practice with feedback is sufficient for many teachers to show transfer of "fine-tuning" practices to the classroom.
2. Many other teachers require the four components plus coaching in order to achieve transfer.
3. For transfer of new, unfamiliar paractices to occur, all five training components are necessary for some teachers.

4. If any of the first four components is excluded, fewer teachers use the practices in their classrooms. (Demonstration was thought to be especially critical.)

Joyce and Showers (1981) later reviewed a sub-set of the original 200 studies of teacher training. They selected only those studies where (a) classroom observation was used as a measure of teacher use of the trained skills, and (b) where transfer of the skills to the classroom was accomplished to a "satisfactory" degree. Of the 26 studies selected, nine were conducted with pre-service teachers, and four were with non-teachers. Because in-service teacher training is the topic of this paper, only the 13 studies of inservice training will be presented here. Three other related studies have also been included. These studies are described in Table 1.

The 16 inservice training studies are arranged according to the presence of Joyce's five components of training ("Training Components"--Column 3). The first two studies included all five components (Presentation, Demonstration, Practice, Feedback, plus Coaching). Eight studies included only the first four components. The remaining studies used only three or fewer of the training components. Upon close inspection of the studies in Table 1, it seems clear that many teachers will change satisfactorily when trained with only one or two of the first four components (e.g., Good & Brophy, 1974, and Anderson et al., 1979).

It must be mentioned that various methods were used to establish that teachers did, indeed, change: from pre- to post-training average behavior change to comparisons between average change of the trained and control groups. Thus, it is difficult to know from these results which teachers changed the most on which variables and why. To address this question, some studies found relationships between teacher characteristics (e.g., conceptual level and self-actualization) and teacher change (e.g., McKibben, 1981).

Table 1

Studies of Inservice Teacher Training

Author(s)	Training Topic	Training Components	Observation Instrument	Sample	Results	Comments
McKibbin (1981)	Eight models	Presentation Demonstration Practice Feedback Coaching	Clinical analysis Interaction analysis	20 inservice teachers	Transfer occurred for most teachers	Conceptual Level and Self-actualization were relevant to transfer
Crawford et al. (1978)	Classroom management organization interaction	Two types: 1.Presentation only 2.Presentation Demonstration Practice Feedback Coaching (video)	Stallings Secondary Observation Instrument	33 elementary teachers	7 of 16 practices were implemented correctly. Both types of training were equally effective	Verbal ability was related to transfer
Ascione & Borg (1980)	Handicapped pupil self-concept	Presentation Discrimination practice Film demonstration Classroom practice Peer feedback	Classroom observation	Special education teachers	Teachers changed on 6 of the 12 recommended behaviors	
Johnson & Sloat (1980)	Classroom management	University course: Week #1: Presentation #2: Practice in class #3: Demonstration #4: Learn observation system #5: Peer feedback	Classroom observation	13 elementary teachers	No change was seen after presentation and practice only. Demonstration and peer feedback produced immediate change. Five months later, no trained practices were seen. Reinstating peer feedback had no effect 5-months later.	No long-term transfer of training
Borg (1977)	Two groups: 1. Classroom management 2. Pupil self-concept	Presentation Discrimination Film demonstration Classroom practice Self-feedback	Classroom observation	8 elementary teachers	Group 1 increased 7 out of 12 behaviors. Group 2 increased 11 out of 12 behaviors.	The same training was more effective for one topic than it was for the other one.
Kelly (1973)	Four models of teaching	Presentation Demonstration Practice Feedback	Clinical analysis Interaction analysis	30 inservice teachers	Teachers displayed skills of models for "on call" observations	Teachers varied in voluntary use of models
Zevin (1973)	Inquiry training	Three types: 1.Live demonstration 2.Presentation 3.Feedback & analysis	Flanders interaction analysis	Social studies teachers	Only one group, the presentation group, changed at all.	No group changed enough to conform to the desired model.

Borg, Langer & Kelly (1969)	Discussion skills	Mini-course: Presentation Demonstration (live) Practice Feedback (self & peer--videotape)	Analysis of videotape	48 intermediate teachers	On the average, teachers changed on all skills and maintained them 5 months later.	Included follow-up observation
Borg (1972)	Same as above	Same as above	Same as above	24 inservice teachers	Teachers changed 8 of 10 behaviors and maintained change 39 months later	
Borg (1975).	Clarity Encouragement Emphasis Organization	Presentation Discrimination Practice Peer and audiotape feedback	Classroom observation of staged lesson	25 intermediate teachers	The trained group made significant gains on all behaviors and exceeded the control group on 4 of them.	Observation of staged lesson does not guarantee normal use.
Stallings, Needels, & Stayrook (1978)	Classroom management organization interaction	Presentation Practice in class Feedback (pre- and post-training profile)	Stallings Secondary Observation Instrument	44 high school reading teachers	The trained group implemented more recommendations than did the control group Most behaviors were maintained 4 months later	Included follow-up observation
Feldens & Duncan (1978)	OSIA variables	Five types: 1.Control 2.Presentation only 3.Presentation with feedback 4.Presentation with goal-setting 5.Presentation with goal-setting and feedback	Observation System for Instructional Analysis	20 elementary teachers in Brazil	Presentation with feedback was most effective. Teachers changed 3 of 6 clusters of behaviors in groups 3,4,5.	Teachers chose own area for change (goal-setting) in some groups.
Good & Grouws (1979)	Daily instructional plan	Presentation only (manual with one meeting)	Classroom observation	36 elementary teachers	Some recommendations were used during 90% of the observations and some in only 30%	
Anderson, Evertson & Brophy (1979)	Classroom management organization interaction	Presentation only (manual with two meetings)	Classroom observation	27 elementary teachers	Wide variation in implementation--the least implemented were less familiar and less congruent	Looked at characteristics of practices as an explanation of variation
Worthen (1968)	Discovery and expository teaching	Presentation	Classroom observation (high inference rating scale)	Over 450 elementary teachers	"Satisfactory"implementation of models.	
Good & Brophy (1974)	Classroom interaction (student participarion)	Feedback based on extensive classroom observation Discrimination Request for change of behavior	Classroom observation of dyadic interaction	Elementary teachers	Significant behavior change was observed in most teachers on most behaviors	40 hours of observation before and 40 hours after feedback provided.

* It is hard to establish that no practice occurred in these studies. It seems reasonable that teachers tried out some of the practices is their classes.

** The distinction between feedback and coaching is difficult to establish from the research reports; i.e. feedback could be presented in a manner similar to coaching .

Clearly, the type of training strategies chosen is not the only factor affecting teacher use of recommended practices. As one investigator put it, "Inspection of results for individual teachers suggests that teacher training should be individualized as much as possible. Some behaviors were more responsive to particular interventions than were others, some procedures affected certain teachers more than others, and some teachers did maintain behavior change" (Johnson & Sloat, 1980,p.114). Another factor affecting implementation of training is the type of behavior being recommended.

Characteristics of Teaching Practices

Joyce and Showers (1981) have distinguished between training for "fine tuning" of already familiar skills, and training for mastery of new, unfamiliar strategies or models. Fine-tuning purposes include improvement of questioning, feedback, and other commonly-used practices. New repertoire purposes include changing to unfamiliar teaching approaches or completely new curricula.

The distinction between training effects on use of familiar and unfamiliar skills is not a new one. Doyle and Ponder (1977) tried to build a conceptual framework for understanding the way practicing teachers react to change proposals by analyzing evidence from implementation studies of innovation projects. They suggested that recommendations that are seen by teachers as "practical" are likely to be incorporated into teacher plans. One major determinant of teachers' perceptions of practicality is congruence, the degree of "match" between the proposal and the teacher's preferred mode of conducting classroom activities. Thus, if a teacher does not accept a teaching recommendation as fitting in comfortably with his normal style, it is unlikely that the teaching practice will be adopted (see Mohlman, et al., in press for a more detailed discussion).

Doyle and Ponder (1977) suggest two other determinants of "practicality": instrumentality, or the extent to which the recommendation is stated clearly and specifically; and cost, or weighing the ease with which a procedure can be implemented and the potential return it will yield. The instrumentality of a recommendation could be affected by the training; for example, the trainer's explanation could be clear and concrete or fuzzy and abstract. Cost is similar to Fullan and Pomfret's (1977) innovation characteristic, "degree of difficulty" (or complexity). They suggest that, as the required change becomes more difficult or complex to use, more variation in implementation will occur.

Teacher Characteristics

The characteristics of recommendations--congruence (familiarity), instrumentality (specificity), and cost (ease, worth)--may not be absolute for all teachers or stable across time. Rather, the teachers' perception of these characteristics could determine whether they implement the new practices. Thus, training recommendations seen by teachers as familiar, specific, or cost-effective would be more highly implemented than those seen as unfamiliar, abstract, or difficult (and, thus, not worth the effort). It seems most reasonable to think of practicality not as characteristic of recommendations, but rather as a teacher perception. For this reason, familiarity, ease, and worth of recommendations will be treated as a teacher characteristics here. It follows that different types of training approaches may be needed for recommendations perceived as "practical" or "not practical". Further, one important objective of training may be to influence teachers' perceptions of the practicality of the recommended teaching practices.

Teacher characteristics such as experience and preparation could also influence effectiveness of training. For example, high school teachers may have difficulty learning to use grouping strategies because this method is not often emphasized in the secondary school teacher's preparation curriculum (see Stallings et al., 1979). Thus, coaching may be required for transfer of this rather difficult practice into the classroom.

The Problem of Long Term Transfer

A negative result was obtained in a recent teacher training study (Johnson & Sloat, 1980). After rather intensive training, teachers were observed in their classes. On the average, the training recommendations were implemented to a satisfactory level. But, observations five months later revealed very low use of the trained practices.

Teacher trainers hope to make lasting changes in teaching behavior through teacher improvement efforts. Yet, long-term maintenance of trained skills is rarely measured. When it is measured, results are often disappointing. In some cases, however (Stallings et al., 1979; Borg, Langer, & Kelley, 1969), teachers do achieve transfer in the ultimate sense--the integration of the new skills into one's permanent style, thoughtfully applied as required by the situation. Yet, we do not know very much about how teachers accomplish this. Training types or teacher perception of the practices may influence such long-term transfer.

Summary

Teacher training studies have shown that, on the average, practicing teachers will implement many training recommendations in their clasrooms when provided with presentation, demonstration, practice and feedback. Some teachers will only achieve transfer of training when provided with the above training plus in-classroom coaching. Others may transfer skills after only

presentation with demonstrations or feedback. As is shown in Figure 1, factors thought to be important to implementation are type of training, teachers' familiarity or experience with the recommendations, and the teachers' perception of the effort required for the recommendation to have an effect on his or her class. Long-term transfer is our ultimate goal and should be assessed several months after training.

Preliminary Findings of a Study of Inservice Teacher Training

Based on the conceptualization of teacher change in Figure 1, a study of inservice training was conducted during the fall and winter of school year 1981-1982. The study design and a brief report of some preliminary findings are described next.

Sample

Twenty Jr. high school teachers of English and Math for low-achieving students participated in the study. Two to five teachers were recruited from each of seven schools in the San Francisco Bay Area. The schools were roughly equivalent in terms of S.E.S. and organizational climate as indicated by teacher questionnaires.

Procedure

In early October, two trained observers observed all teachers during the same class period on three consecutive days using Stallings' Secondary Observation Instrument. These data were converted into teacher behavior profiles that were given to the teachers at Workshop 1 in late October. The teachers also completed a short questionnaire to assess (a) selected teacher characteristics (e.g., perception of the practicality of the recommendations), (b) school-level organizational factors; and (c) student characteristics. Next, teachers from geographically close schools were combined into three groups of six or seven. Finally, each group of six or seven teachers was assigned to one of three treatments.

The three groups of teachers then received three different variations of

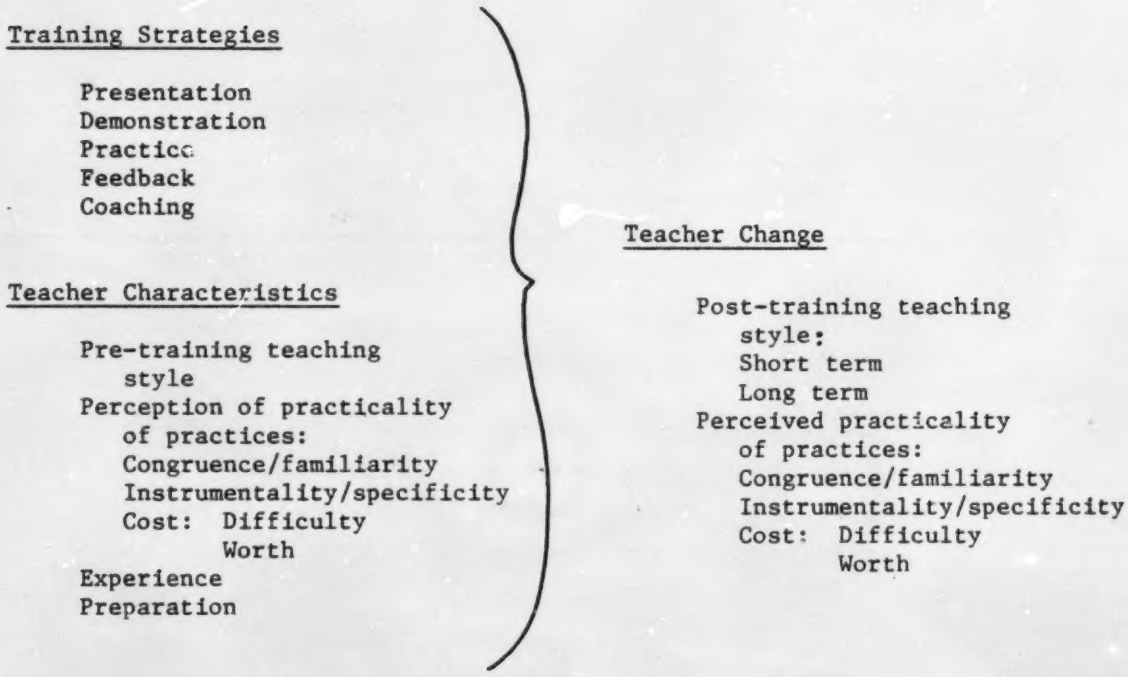


Figure 1. The process of teacher change.

Stallings' Effective Use of Time Training during late October and November (further details are provided in the next section, Treatments). In January and February, all teachers were again observed on three consecutive days and filled out teacher questionnaires. In March, interviews were conducted and a final meeting was held to inform teachers of their observation results. In May, two teachers from each group will be observed: one showing large short-term change, and one showing little change.

Treatments

Three combinations of training components were used. All three groups participated in four identical Effective Use of Time workshops. In addition to attending the workshops, the second group engaged in peer observations and the third group received coaching from the trainer.

Thus, Group 1 received Presentation, Demonstration, Practice and Feedback in the workshops only; Group 2 received these four components plus classroom observations by a peer on two occasions; and Group 3 received the four components plus in-classroom coaching by the trainer on two occasions:

	Group 1 (N=7)	Group 2 (N-7)	Group 3 (N=6)
EFFECTIVE USE OF TIME WORKSHOPS	Presentation (Demonstration)* Practice Feedback	Presentation (Demonstration)* Practice Feedback PEER OBSERVATION	Presentation (Demonstration)* Practice Feedback TRAINER COACHING

*Some techniques were demonstrated by the teachers for each other, but formal modeling was not a regular part of the training.

The Workshops

The primary purpose of the Effective Use of Time Training is to increase student time on task. The 2-1/2 hour workshops were conducted one week apart for four consecutive weeks after school. Jane Stallings and Georgea Mohlman conducted the workshops as follows:

Workshop 1. Teachers were given their observation-based profiles and an explanation of the findings from Jane Stallings' research on basic skills instruction in secondary schools (Stallings et al., 1979). Then they were assisted in interpreting their profiles and in identifying areas for improvement. Finally, they were given a Classroom Log of Time and Activities to complete during the next week. Teachers also were asked to read a Home Training Packet on Classroom Organization and Grouping.

Workshop 2. First, teachers discussed what they learned about their classroom organization from the logs and new things they had tried in their classrooms. Then, a short presentation was made on the research on classroom organization (instructional management, transitions, etc.) and grouping strategies. Next, teachers shared their favorite organizational techniques for maximizing student learning time (e.g., starting an academic activity immediately after the bell rings).

All teachers were given seating charts to use for recording which students were off-task at 5-minute intervals. Group 1 was told to try to use it by themselves or to have a student or aide record students off-task. Group 2 was told to form pairs and to observe each other during the next week, leaving the observation seating chart with the observed teacher afterward. Group 3 was observed by the trainer and given (a) feedback from the seating chart, and (b) two or three specific recommendations for change in a short conference after the observation. Finally, teachers were asked to read the Home Training Packet on Behavior Management and Discipline.

Workshop 3. First, teachers were asked to share with the group any insights they had gained from the information on the seating chart observation. At this point, teachers became involved in analysis of their own classroom

management. The teachers also talked about new things they had tried in their classrooms and how they had worked. Then, a short presentation of findings from research on behavior management (rules, consistency, clarity, etc.) was made. Next, teachers discussed problem students and shared strategies for dealing with such students. Finally, teachers were given another seating chart observation instrument--this one was designed to record how much interaction and the type of interaction students have with the teacher. Each of the three groups was asked to go through the same observation process they had gone through the previous week. And, teachers were again asked to read a Home Packet on Lesson Design and Interactive Instruction.

Workshop 4. As in Workshop 3, teachers became involved in an analysis of their teaching--this time, the focus was on distribution of opportunities for response and types of interactions with individual students as reflected by the seating chart observation. Teachers also shared their experiences during the past week as they tried new behavior management strategies in their classrooms. A short presentation was made about: lesson planning and design; variety of activities; probing and guiding after wrong answers; and explaining concepts. Then, teachers shared their favorite techniques for designing lessons and interactive instruction (e.g., equal distribution of opportunities for response). Finally, the teachers identified skill areas that they had chosen for improvement and outlined their specific strategies for making the changes they had identified.

Analysis

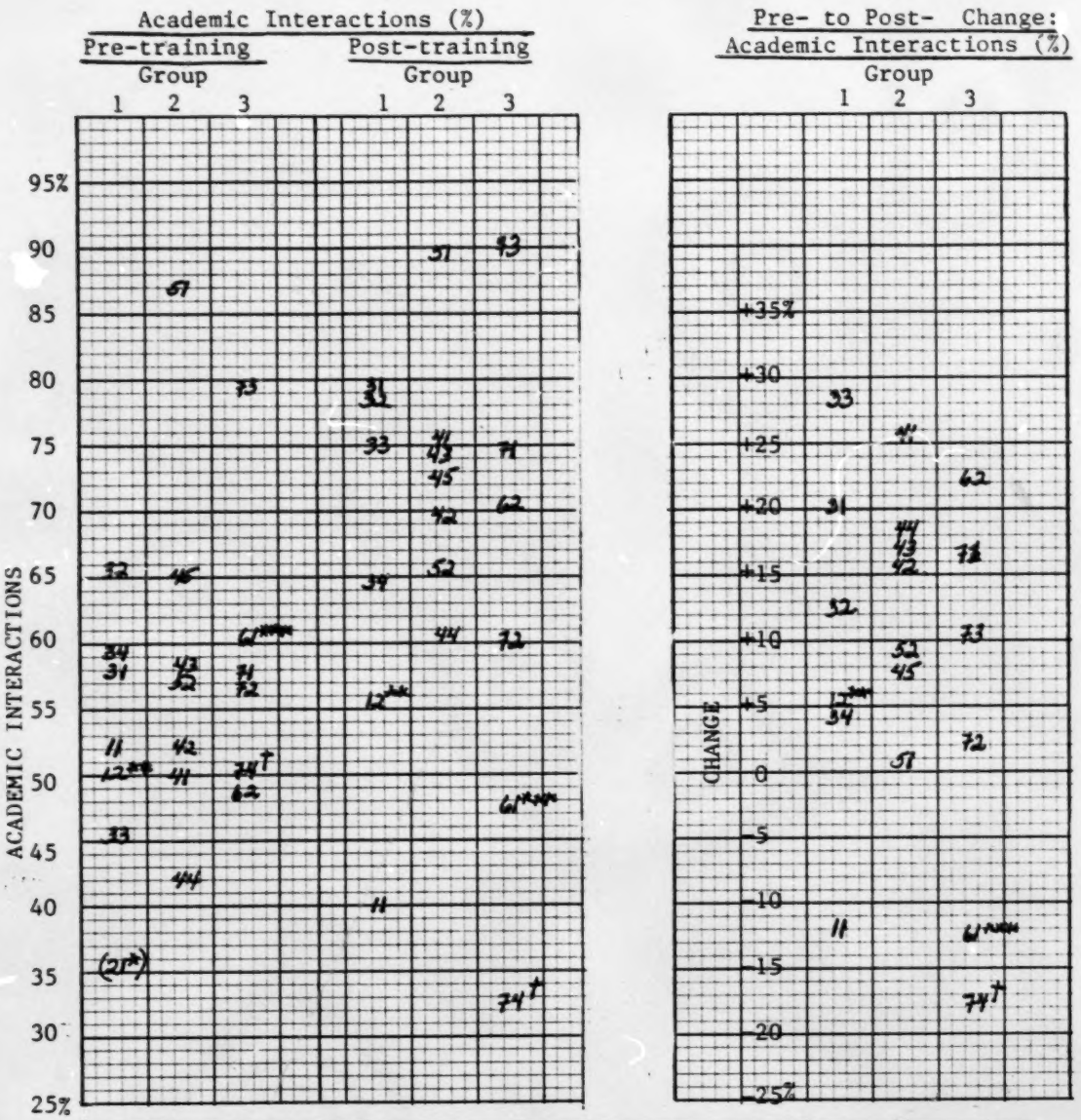
Because there was not random assignment of subjects to groups and because of the small sample size, the data will be presented descriptively.

The only dependent variable that has been considered so far is percent of Academic Interactions. This is one of the variables yielded by the Secondary Observation Instrument Five-Minute Interaction. For five minutes, at five equally-spaced intervals throughout the period, the observer coded every interaction between the teacher and students. Over the three days of observation, approximately 900 interactions were recorded. Each interaction frame contained the following information: Who said it, To Whom it was said, What it was (e.g., question, lecture, correction, etc.), and How or what it was about (Academics, Organizing, Misbehavior, or Socializing). Thus, to compute the percent of all interactions that were about the academic subject matter, the number of academic interactions was divided by the total number of interactions. Giving directions for an activity was not considered an academic interaction.

Preliminary Findings

The main purpose of the Effective Use of Time Training is to increase the time students spend actively involved in academic tasks. Therefore, it seemed reasonable to inspect the percent of Academic Interactions for each teacher and group. It should be mentioned that the training concentrated on specific techniques for raising student time-on-task. Teachers chose different areas for improvement and different techniques depending on their own assessment of need after considering the observation data. Thus, not all teachers were trying to implement the same techniques in their classrooms. The teachers were, however, all aiming for the same goal--to increase student learning time.

Figure 2 shows the percent of academic interactions for each teacher by code number. The teachers in Group 1 (workshops only) had code numbers



GROUP	1	2	3	1	2	3		1	2	3
N	7	7	6	6	7	6		6	7	6
MEDIAN	56	57	57	70	71	65		9	16	7
MEAN	55.7	59.2	58.9	65.2	73.1	62.6		10.	13.9	3.8
S.D.	7.1	14.4	11.	16.4	8.8	20.4		14.2	8.4	16.3
RANGE	36.4	42.8	48.7	37.5	61.5	32.9		-12.4	1.4	-17.6
	66.5	87.6	79.2	79.4	89.	90.		28.2	26.6	22.4

* No post-training data (not included in mean).

** Missed two of four workshops.

*** Decided to change careers in Jan.
Quit teaching after observation in Feb.

† Taught in an individualized Lab setting. Did not see the program as relevant.

Figure 1. Percent of academic interactions for groups receiving three models of training.

starting with 1, 2, or 3; Group 2 (peer observation) had code numbers starting with 4 or 5; and Group 3 (trainer coaching) had code numbers starting with 6 or 7. The pre-training, post-training, and change scores for each teacher are graphically displayed. Upon inspection of the figure, one can see that, as in most teacher training studies, there was wide variation among the teachers on the pre-training and post-training observations and on the amount of change.

The pre-training scores were roughly equivalent for the three groups. The post-training scores indicate that all groups improved, but that Group 2 improved the most on Academic Interactions. In Group 1, teacher 11 spent a long time giving directions during the observations. This was not coded as academic interaction. Teacher 12 only attended two of the workshops and displayed a very low interest level. In Group 3, teacher 61 decided to change careers after having a very bad experience all fall with discipline problems. He allowed us to observe him but it was clear that he had "given up" on the behavior problems in his class. Finally, teacher 74 taught in an individualized lab/workbook setting and found the training recommendations to be inappropriate for his class. He sat at his desk most of the period and students brought him their work to check.

Aside from these special cases, all teachers in the three groups seemed to benefit from the training, at least in terms of academic interactions. Thus it seems that all three treatments were fairly powerful.

The scores of Groups 1, 2 and 3 can be compared with the scores of the control group in the Basic Skills Study (Stallings, et al., 1979). In that study, secondary school control teachers from a similar population were observed with the same instrument at the same time intervals as were the teachers in this study.

The Basic Skills control teachers (N=19) averaged approximately 80% academic interactions in the fall, and dropped to 69% in the winter. Another group of Basic Skills teachers (N=17) that received only the workshops averaged 78% in the fall and increased academic interactions to 85% in the winter.**Looking at gain only, and recognizing that the Basic Skills teachers started out higher, the following figures result:

Control group gain (N=17)	-11%
Workshop only gain (N=19)	+ 7%
Group 1 gain (N=6)	+ 9%
Group 2 gain (N=7)	+16%
Group 3 gain (N=6)	+ 7%

Group 2 gained the most. This group participated in peer observations. It is important to note that the observation forms the teachers used were student-focussed. This enabled the teachers to be observed by a colleague without feeling threatened. Our experience with peer observation is that teachers feel more comfortable with an objective student-centered coding system than they do with "anecdotal records" or subjective teacher-centered observations. Thus, it seems that this type of peer observation is a fairly powerful intervention when coupled with on-going small-group problem-solving workshops.

It was expected that Group 1 would not improve as much as the other two groups since they were not receiving the extra observations or coaching. These teachers, however, had their aides use the observation forms on two occasions and brought that information to the workshops to discuss and analyze. Therefore, this group did not really get the treatment. They did not observe each other, but they did have aides observe them.

** NOTE: In Stallings' Basic Skills study, students of Training Group teachers gained significantly more in reading than did students of Control Group teachers.

Group 3 received on-site coaching from the trainer. This addition to the workshops did not seem to be as effective as the addition of peer observation was.

In conclusion, it appears that the provision of the seating chart observation feedback was quite powerful for all groups, that peer observation was a valuable addition to the workshops, and that coaching did not add much to the effectiveness of the training.

Discussion

There is still a lot of data to analyze that will shed light on which teachers changed which teaching behaviors the most and why. The teacher questionnaire assessed school characteristics and teachers' perceptions of the difficulty and importance of each of the recommended practices. The interviews were designed to uncover the process of teacher change (e.g., strategies for trying new things), teachers' reactions to the training, and usefulness of the various forms of feedback. These results should be available by fall of 1982.

So far, teachers have reacted quite favorably to the Effective Use of Time Training. The positive features they have mentioned most often are: receiving a profile of their teaching behavior; learning about research on teacher effectiveness; the seating chart observations; having an opportunity to share their best teaching strategies; talking to other teachers about problems and frustrations; being able to choose their own areas for change; and the small group problem-solving approach.

Approaches to Research on Inservice Training

It should be mentioned that this inservice training approach differs

from most in that: teachers are given specific feedback on their teaching (pre- and post-training profiles) and recommendations for change; it is on-going -- four to six weeks; teachers are encouraged to "teach each other"-- trainers do not try to provide all the solutions, rather, questions and problems are referred to the teachers for ideas and solutions; the small group becomes a support group for those teachers who are discouraged or frustrated; and analysis and problem-solving are approached collaboratively with the trainers.

Typically, research on inservice teacher training has been conducted under the assumption that all teachers should use all of trained teaching practices in their classes. Observations are conducted to establish implementation of training and teachers not displaying the recommended behaviors are considered to show no change. This approach assumes that all teachers will need to use all the practices in order to teach well. Yet, as we spend more and more time in classrooms, it is clear that teachers' styles vary widely, and that the same practices could be used efficiently or inefficiently by different teachers.

It seems that it may be more true-to-life to recognize the variation among teachers and to take advantage of it through a more clinical, individualized approach to inservice training. After all, we don't really want teachers blindly applying "effective" techniques -- techniques only become "effective" when teachers apply them in the appropriate balance and in the appropriate circumstances.

Thus, it would make sense to focus teachers' inservice experience as follows: analysis of one's own teaching in light of the relevant research; identification of two to three areas for improvement; sharing of effective

techniques and how to use them; continuous meetings to discuss the progress and problems experienced as one tries to make changes in the classroom; and periodic provision of feedback from classroom observations by a colleague. All of this would be accomplished in frequent small-group meetings with a trainer and with specific topics for discussion.

What has been described here is a collaborative professional growth model, where teachers can share their concerns and knowledge and where experimentation is encouraged in a collegial, supportive atmosphere. From our experience training over 300 teachers with this model, teachers really enjoy the shared professional growth that they experience.

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